

ABSTRACT OF THE DISCLOSURE

A micromachined single-crystalline silicon micro-gyroscope comprising oxide/polysilicon/metal triple layer for electrical isolation is disclosed. The isolation method includes forming the triple layer composed of an insulation layer formed over an exposed surface of the silicon microstructure, a conductive layer formed over the entire insulation layer, and a metal layer formed over a top portion of the microstructure; and partially etching the conductive layer to form electrical isolation between parts of the microstructure. The method does not require a separate photolithography process for isolation, and can be effectively applied to microstructures having high aspect ratios and narrow trenches. Also disclosed are micro-gyroscope comprising a new type of spring which has a node with a hole in the middle of spring to reduce the release etch time for spring.